

Of the seven possible variations from the normal arrangement, but four were noticed. In no case were the cardinals alone reversed, but invariably a reversal of these teeth was accompanied by a reversal of either one or both pairs of laterals. Neither were the cardinals and posterior laterals alone, nor both pairs of laterals alone reversed in any case. The following table gives the details of the different variations observed and their relative frequency.

Normal *Sphærium*—cardinals  $\frac{1}{2}$  Ant. Lat.  $\frac{2}{1}$  Post. Lat.  $\frac{2}{1}$ .

Abnormal *S. striatinum* Lam.

No. of specimens 22: Cardinals  $\frac{1}{2}$  Ant. Lat.  $\frac{1}{2}$  Post. Lat.  $\frac{2}{1}$ .

No. of specimens 32: Cardinals  $\frac{2}{1}$  Ant. Lat.  $\frac{1}{2}$  Post. Lat.  $\frac{2}{1}$ .

No. of specimens 22: Cardinals  $\frac{2}{1}$  Ant. Lat.  $\frac{1}{2}$  Post. Lat.  $\frac{1}{2}$ .

No. of specimens 32: Cardinals  $\frac{1}{2}$  Ant. Lat.  $\frac{2}{1}$  Post. Lat.  $\frac{1}{2}$ .

Abnormal *S. simile* Say.

No. of specimens 52: Cardinals  $\frac{2}{1}$  Ant. Lat.  $\frac{1}{2}$  Post. Lat.  $\frac{2}{1}$ .

No. of specimens 32: Cardinals  $\frac{2}{1}$  Ant. Lat.  $\frac{1}{2}$  Post. Lat.  $\frac{1}{2}$ .

No. of specimens 22: Cardinals  $\frac{1}{2}$  Ant. Lat.  $\frac{2}{1}$  Post. Lat.  $\frac{1}{2}$ .

#### NEW AMERICAN ANCYLIDÆ.

BY HENRY A. PILSBRY.

Owing doubtless to the difficulty of distinguishing species in this group, but little work has been done upon the United States forms since the publication of Haldeman's monograph in 1842. Clessin, in the "Conchylien Cabinet," has added nothing of value to our knowledge of United States species, his *A. oregonensis* from Salem, Oregon, of which I have "topotypes," being doubtfully distinct from Tryon's *A. fragilis*. *A. caurinus* is also, as Tryon states, a synonym of *fragilis*.

In naming a series of Illinois mollusks for the Illinois State Laboratory of Natural History, my attention was directed to this genus.

The species of *Ancylus* fall into two groups, not, I suppose, of much importance systematically, but of considerable interest in a broad view of the conditions of mollusk life. One group, which may be termed the "petrophilous" *Ancyli*, live on rocks and shells in rivers, and usually have a rather highly conic shell. The other group, "phytophilous" *Ancyli*, live on water plants; some deeply submerged, as on the "leaves of grass" (to use a Walt. Whitmanism), streaming upward from the bottom; others inhabit the round

under-world of floating lily-pads; sometimes they are found on dead leaves in the water. The species of this group are mainly more fragile and depressed than those of the first group, and sometimes they are modified to correspond with their stations, as *A. parallelus*, living on narrow stems. It is evident that this difference of station means also more or less difference of food; and it will be interesting to find whether there exists any corresponding divergence in the dentition. The importance of full information on the *station* of every lot of *Ancylus* collected, will be evident from the foregoing.

Nearly all specimens when collected, are more or less coated with foreign matter, sometimes calcareous, but generally ferruginous. This must be removed before the color and finer sculpture can be observed. By floating the shell a short time on the surface of a weak solution of oxalic acid, rinsing it in water and then brushing, it may readily be cleansed. Nearly all North American species are then seen to be a clear corneous-white tint; most of them have growth-lines only, a few have radial striæ. Most of those species which have been described as dark colored, such as *A. obscurus* Hald., owe their color entirely to foreign matter, the shell itself being very pale.

Exhaustive comparisons with specimens of all North American species, and the types or author's examples of most of them, convince me of the novelty of the following species.

*Ancylus peninsulæ* Pilsbry & Johnson, *n. sp.*

Shell thin and fragile, with much depressed, broadly oval contour, the obtuse, rounded summit somewhat to the right of and behind the middle. Anterior, posterior and right slopes of the low cone nearly straight; left slope slightly convex. Color light horny brown, with a suggestion of olive when cleaned, usually with a very light brownish coating in a state of nature. Surface with slight, fine growth-lines and close, fine and conspicuous radial striæ.

Length 7, width 5, alt. 1.7 mill., often larger.

St. John's River and other localities in Florida, usually in creeks, living on the foliage of aquatic plants.

Somewhat like the northeastern *A. fuscus*, but readily known from all other species of the United States by its large size, broadly oval and depressed form, blunt apex, and the dense radial striation. Several Antillean and South American species are somewhat similar to this, but these large and depressed forms have the apex far more excentric.

This is by no means rare in collections of fresh-water shells from Florida, but is generally labelled "*A. filusus* Conrad," probably on account of the conspicuous radial sculpture. Conrad's *filusus*, however, is a stout, very steeply conical species with coarser radial riblets than any other known American form, and totally different from the low and delicate *A. peninsulae*. It is from the Alabama River, where it is found living on Melanians. This fact, together with the texture and form of the shell, indicate that *filusus* is a typical rock *Ancylus*, like *rivularis*; while the form from Florida is a true weed dweller.

The types of *A. peninsulae* were collected by the editors of this journal in Salt Creek, one of those sparkling streams of "sulphur water" so characteristic of Florida, arising from great brimming springs and feeding the St. John's and other rivers. Salt Creek is the northernmost stream flowing into Lake George on the west side. The *Ancylus* lives on long water-grass, and is abundant.

*Ancylus eugraptus* Pilsbry, *n. sp.*

Shell rather fragile, oval, the right side less arcuate than the left; rather elevated, the apex slightly behind and to the right of the middle, somewhat obtuse, with an indistinct apical depression or scar, posterior and right slopes straight, anterior and left feebly convex. Translucent horn colored and glossy when cleaned, with a blackish coating when collected. Surface with faint growth-lines and very fine, somewhat irregular radial striae, more distinct toward the periphery. Length 6, breadth 4, alt. 1.8 mm.

Illinois River at Havana, Ill.

Types are no. 67791, coll. A. N. S., Phila., from lot no. 13542, coll. Ill. State Lab. Nat. Hist.

This species, while resembling *A. obscurus* and *A. fuscus* somewhat, differs from both in the sculpture. The apex is far more eccentric than in *A. borealis* or *A. ovalis*, both of which are very small species. *A. filusus* is far rounder, more steeply conic, and has stronger radial riblets. In *A. rivularis* the apex is much more strongly recurved, and the slope behind it notably concave.

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#### ISAAC LEA DEPARTMENT.

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[Conducted in the interest of the Isaac Lea Conchological Chapter of the Agassiz Association by its General Secretary, Mrs. M. Burton Williamson.]

One of our new members in a letter to the General Secretary writes as follows in reference to collecting Mollusks in Winter in